

1    CLAIMS

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3    1.   A strategy for suppressing or partially  
4       suppressing an endogenous gene and replacing the  
5       suppressed gene sequence with a nucleic acid  
6       sequence which differs from the endogenous gene  
7       and wherein the suppressing agent(s) comprises at  
8       least one suppressor from the group comprising  
9       antisense nucleic acid, peptide nucleic acids, DNA  
10      capable of forming triple helix or ribozymes  
11      targeted to the endogenous gene or gene  
12      transcripts and wherein the replacement nucleic  
13      acid sequence encodes at least part of a gene  
14      product and is not suppressed by suppression  
15      agent(s) or is suppressed less efficiently by  
16      suppression agent(s) and wherein the replacement  
17      nucleic acid sequence comprises amino acid codons  
18      which encode at least part of the gene product,  
19      and have modifications at wobble site(s) such that  
20      replacement nucleic acids still code for the wild  
21      type or equivalent amino acids.

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23   2.   A medicament comprising either one or both of a  
24       gene suppressing agent and a nucleic acid encoding  
25       at least part of a replacement gene product for  
26       use in a strategy as claimed in Claim 1.

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28   3.   A medicament comprising a nucleic acid sequence  
29       encoding at least part of a gene product wherein  
30       the sequence differs from the endogenous gene in  
31       wobble sites.

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- 1    4.    A strategy for suppressing or partially  
2        suppressing an endogenous gene and introducing a  
3        replacement gene said strategy comprising the  
4        steps of:  
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6        a.    providing suppression nucleic acids or other  
7            suppression effector(s) able to recognise,  
8            bind or cleave an endogenous gene, gene  
9            transcript(s) or gene product to be  
10          suppressed and  
11        b.    providing genomic DNA or cDNA (complete or  
12            partial) encoding a replacement gene wherein  
13            the suppression nucleic acids are unable to  
14            recognise, bind or cleave or able to  
15            recognise, bind or cleave less efficiently  
16            equivalent regions in the genomic DNA or cDNA  
17            to prevent suppression of the replacement  
18            gene wherein the coding sequence of  
19            replacement nucleic acids has been altered to  
20            prevent or reduce efficiency of suppression  
21            and wherein replacement nucleic acids have  
22            modifications in one or more wobble sites  
23            such that replacement nucleic acids still  
24            code for the wild type or equivalent amino  
25            acids.  
26  
27    5.    The use of a strategy as claimed in any of the  
28        preceding Claims in the preparation of a  
29        medicament for the treatment of an autosomal  
30        dominant disease caused by an endogenous target  
31        gene wherein the disease is caused by different  
32        mutations in the same gene in different patients.

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2 6. The use of:

3 a. a vector or vectors containing suppression  
4 effector(s), said suppression effector(s)  
5 being able to recognise, bind or cleave  
6 coding sequences of a target endogenous gene  
7 and

8 b. vector(s) containing replacement nucleic  
9 acids in the form of genomic DNA, cDNA or  
10 RNA, which contain altered wobble sites such  
11 that replacement nucleic acids cannot be  
12 recognised, bound or cleaved by suppressor(s)  
13 or are recognised, bound or cleaved less  
14 efficiently by suppressor(s) which are  
15 targeted towards coding sequence of the  
16 endogenous gene and which provide the wild  
17 type gene product and wherein the difference  
18 between said endogenous gene and the  
19 replacement gene still enables the expression  
20 of the replacement gene,

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22 in the preparation of a medicament for the  
23 treatment of an autosomal dominant disease caused  
24 by the endogenous gene wherein the disease is  
25 caused by different mutations in the same gene in  
26 different patients.

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28 7. A use as claimed in Claims 5 or 6 wherein the  
29 disease is a polygenic disorder.

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31 8. A use as claimed in Claim 6 or 7 wherein  
32 suppressor(s) or replacement gene(s) are

1 administered alone or in vector(s) chosen from DNA  
2 plasmid vectors, RNA or DNA viral vectors.

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4 9. A use as claimed in Claim 8 wherein the  
5 suppressor(s) or replacement gene(s) are combined  
6 with lipids, polymers or other derivatives.

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8 10. A kit for use in the treatment of an autosomal  
9 dominant or polygenic disease caused by  
10 mutation(s) in a target endogenous gene, the kit  
11 comprising at least one suppression effector able  
12 to recognise, bind or cleave coding sequence(s) of  
13 the endogenous gene to be suppressed and at least  
14 one replacement gene to replace the endogenous  
15 gene having modifications to wobble sites such  
16 that the replacement gene cannot be recognised,  
17 bound or cleaved or can be recognised, bound or  
18 cleaved less efficiently by suppressor(s) targeted  
19 to coding sequence(s) of the endogenous gene, said  
20 replacement nucleic acid sequence providing the  
21 wild type gene product, and wherein the difference  
22 between said wild type target gene and the  
23 replacement gene still enables expression of the  
24 replacement gene.

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26 11. A use as claimed as in Claims 1 to 10 wherein the  
27 replacement gene is altered from the wild type  
28 gene and provides a beneficial effect when  
29 compared to the wild type gene.

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